

Notice of Allowability

Application No.

10/607,045

Examiner

BEHROOZ SENFI

Applicant(s)

OKADA ET AL.

Art Unit

2621

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/27/2009.
2. ☒ The allowed claim(s) is/are 1, 3-5, 7-9, 11-13, 15-17 and 19-21, renumbered as claims 1-16.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 7/20/2009
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicant's representative Mr. James Love (Reg. No. 58,421) on 7/20/2009.

In the Claims:

Please replace claim 17 with the newly proposed amended claim, as shown below:

Claim 17 (Currently Amended): An image processing method executed using an image processing apparatus having an obstacle detection unit, comprising: Inputting a plurality of frame images serving as video images; detecting, using the image processing apparatus and from each frame image in the plurality of frame images, a straight line component in a horizontal direction in a three dimensional space, the horizontal line being parallel to an image plane of the respective video image, generating an obstacle candidate area as an image area in a vicinity of the detected straight-line component;

tracking the obstacle candidate area in an image succeeding each frame image in the plurality of frame images, and producing a tracking result for the obstacle candidate area;

determining, using the image processing apparatus and using the tracking result of three or more obstacle candidate areas, whether the three or more obstacle candidate areas belong to a plane extending in a specific direction in a three dimensional space, and producing a determination result, the determining further including selecting a candidate area group consisting of three or more obstacle candidate areas, and computing a fitness between the candidate area group and a predetermined plane and evaluating whether the candidate area group belongs to the predetermined plane based on the fitness; and

detecting, using the image processing apparatus, an obstacle based on the determination result.

Allowable Subject Matter

2. Claims 1, 3-5, 7-9, 11-13, 15-17 and 19-21, renumbered as claims 1-16 are allowed.

Claims 2, 6, 10, 14 and 18 have been canceled.

3. The following is an examiner's statement of reasons for allowance: The prior art of the record fails to anticipate or fairly suggest, an image processing for detecting an obstacle, wherein the means for determining includes: means for selecting a candidate area group consisting of three or more obstacle candidate areas; and means for computing a fitness between the candidate area group and a predetermined plane and evaluating whether the candidate area group belongs to the predetermined plane based on the fitness, along with all other limitations as specifies in independent claim 1, and

similar limitations in independent claims 9 (renumbered as claim 7), 17 (renumbered as 13) and 21 (renumbered as 16).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Behrooz Senfi whose telephone number is 571-272-7339. The examiner can normally be reached on M-F 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Behrooz Senfi/
Primary Examiner
Art Unit 2621